

2-2 Linear Equations

2-3 Slope

Linear equation--variables cannot be multiplied together or appear in the denominator; exponent should be one

Graph-line

Standard Form-- $Ax + By = C$, where
 $A \geq 0$ and A and B are both not zero
 $A, B, C \in \mathbb{Z}$ whose GCF is 1

Slope-intercept form $y = mx + b$

slope *y-int*

Put the following in standard form:

ex 1:
 $y = 3x - 9$

$$\begin{aligned} -3x + y &= -9 \\ 3x - y &= 9 \end{aligned}$$

ex 2:
 $\frac{2}{3}x = 2y - 1$

$$\begin{aligned} -\frac{2}{3}x - 2y &= -1 \\ 2x + 6y &= 3 \end{aligned}$$

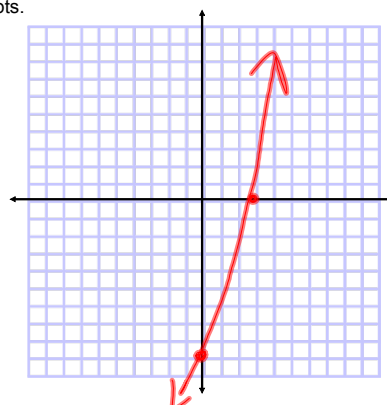
ex3:
 $8x - 6y + 4 = 0$

$$\begin{aligned} 8x - 6y &= -4 \\ 4x - 3y &= -2 \end{aligned}$$

Graph using intercepts.

ex 1

$$\begin{aligned} 3x - y &= 9 \\ (0, -9) \\ (3, 0) \end{aligned}$$



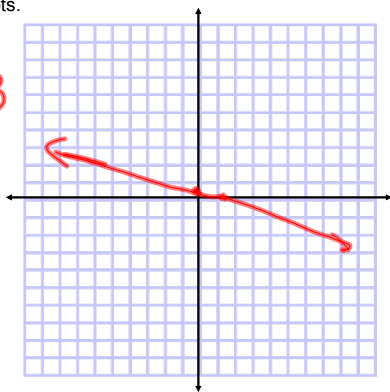
Graph using intercepts.

ex 2

$$2x + 6y = 3$$

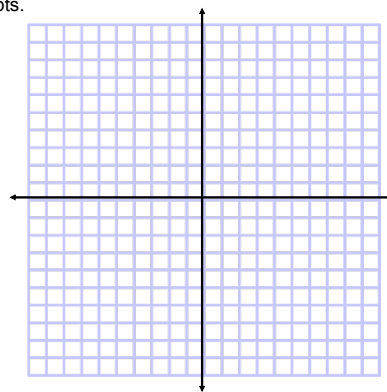
$$(0, \frac{1}{2})$$

$$(\frac{3}{2}, 0)$$



Graph using intercepts.

ex 3



How else do you graph?

Slope

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\frac{\Delta y}{\Delta x} = m$$


Calculate the slope for:
(1,3) and (-2,-3)

$$m = \frac{3 - (-3)}{1 - (-2)} = \frac{6}{3} = 2$$

Special slopes:


Horizontal Line

Zero 

ex:
eqn. 
 $y = 3$

Vertical Line

undefined
no slope

ex:
eqn. 
 $x = 3$

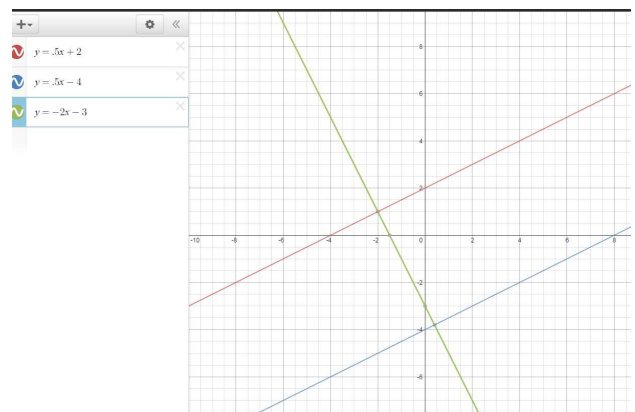
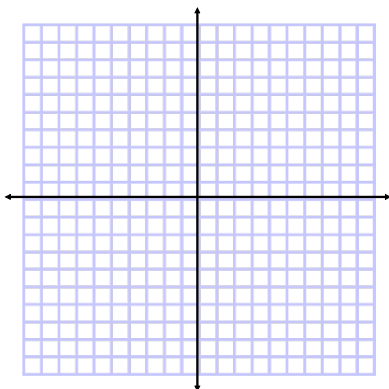


Graphing:

$$y = \frac{1}{2}x + 2$$

$$y = \frac{1}{2}x - 4$$

$$y = -2x - 3$$



hw

Parallel lines

have the same slope

p66

27, 33, 37, 43-49 odd

Perpendicular lines

*have slopes that are opposite
reciprocals*

p71-72

10, 11, 17, 19, 22, 23